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# Small City Transit

MERRILL, WISCONSIN:

Point Deviation Service  
in a Rural Community



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*Transportation  
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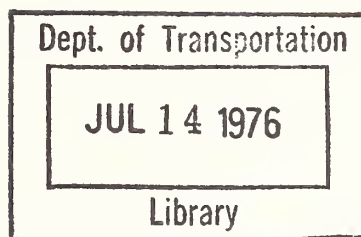
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Preface



This document was prepared by the Transportation Systems Center (TSC) as part of the information dissemination function of the Office of Service and Methods Demonstrations, Urban Mass Transportation Administration. This case study is one of thirteen studies of public transit systems in small communities and is intended to serve as an information resource for other communities in the process of planning or considering public transportation.

The information presented in this document is based on a visit to the site, interviews and phone conversations with the principals involved, and operating records obtained during 1975. The authors gratefully acknowledge the cooperation of local officials and transit operators at all of the sites selected for study, and of the TSC staff in compiling the information gained from these studies and assisting in its interpretation.



MERRILL, WISCONSIN: Point Deviation Service  
In A Rural Community

Merrill's transit system provides a good illustration of how professional planning and outside financial assistance can lead to the successful implementation of an innovative transit service in a small community. The Merrill Transit System is also interesting for other reasons.

The present innovative point-deviation system was conceived out of a need to develop a replacement service for the city-subsidized taxi operation and an electric dial-a-bus service for the elderly and handicapped. This latter service was funded through a grant from the Wisconsin Division of Aging. Fortunately for Merrill, it was able to qualify for a demonstration grant from the Wisconsin Department of Transportation which provided Merrill with financial assistance and professional planning. As a result, Merrill has obtained a system which provides a high quality transit service. Yet the cost to Merrill is the same as the city's share of the costs for the previous combination of transportation services.

Merrill is a community of about 9,500 persons located in North Central Wisconsin (see Figure 1). It is the county seat of Lincoln County and contains about 40% of the county's population. The city has an area of about 5.5 square miles and is linear, being 4 miles long and about a mile and one-half wide. Travel within Merrill is somewhat constricted because of the two rivers (the Wisconsin and the Prairie) which meander through the city and limit travel to a few principal river crossings.

Geographically, Merrill is a relatively isolated community. It developed during the middle of the 19th Century around the lumber industry. Later, the emphasis shifted to agriculture. However, this has declined in importance and the city's economy is now primarily based on manufacturing (wood-related products and fabricated metals). There are no suburban-type shopping centers in or near Merrill, nor are there any suburbs. The major concentration of retail activity is located along Main Street.

The median family income in Merrill is just over \$8,600. Over 15% of the community's residents are over the age of 65 (19% are 62 or older), and 33% are under the age of 18. The city's population has continued to increase, although at a slow rate (1% between 1960 and 1970).

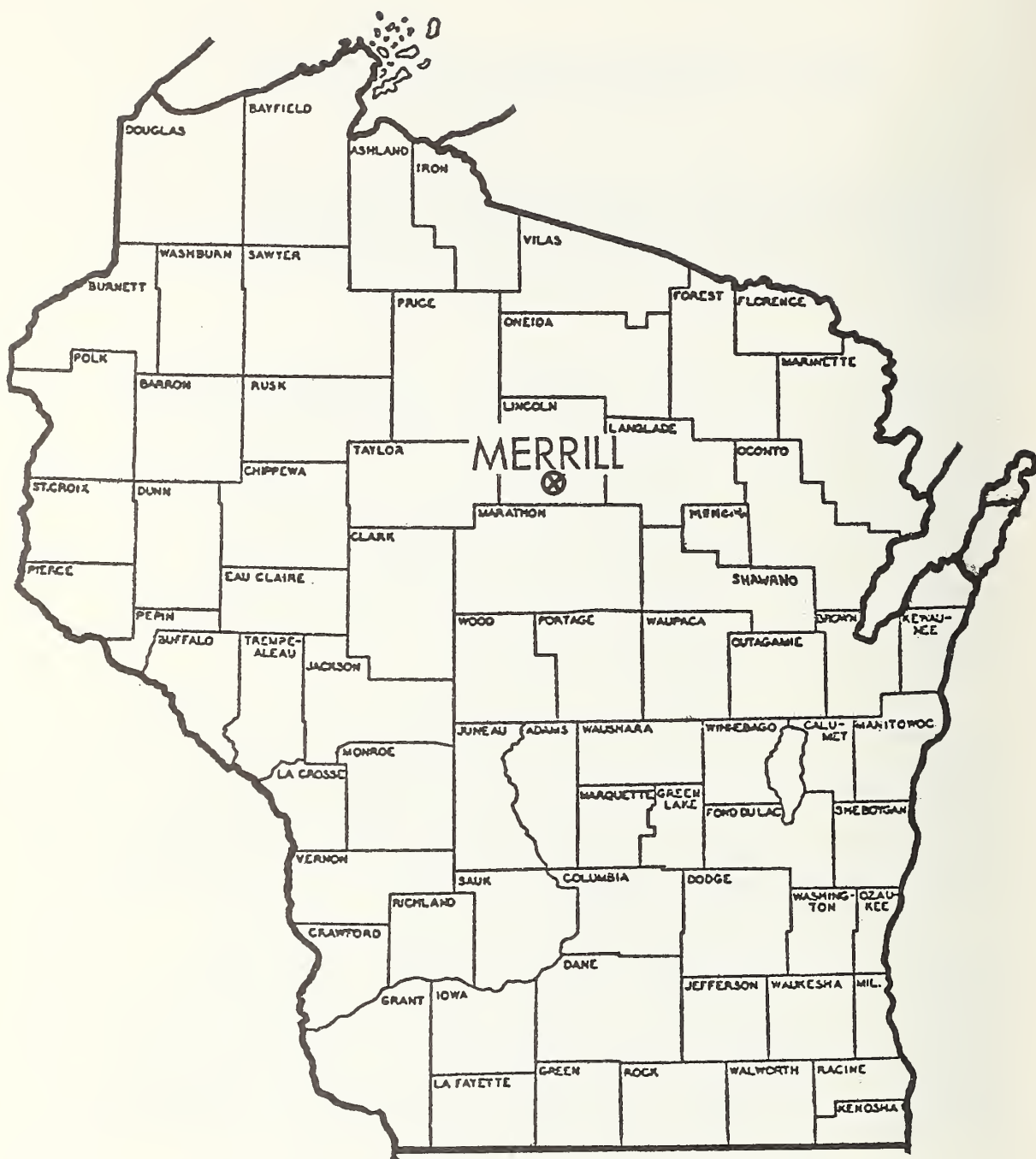


Figure 1. State of Wisconsin



## Public Transportation History

Merrill has had a long and varied history of public transportation. In 1890, the electric street railway was introduced. This was replaced by a fixed route bus operation in the 1920's. The bus system was acquired by the city in 1955 and operated until January, 1971, when it was terminated. During this period, annual ridership declined from 78,000 to 29,000 passengers, while the annual deficit increased from \$2,050 to \$25,000. (In 1970, the service was operated over a single 6.8 mile fixed route, at one hour headways with a fare of 25¢.)

With the end of the bus service, the city authorized a private taxi operator to provide service within the city and agreed to pay the firm a subsidy of up to \$1,000 per month. (The taxi operator also provided school bus service within the city as part of the same agreement.) The average taxi fare was \$.85 per trip and between 55 and 75 persons were carried per day and per weekend. Despite the subsidy, the operator reported that he was losing money, but agreed to retain the service until a suitable replacement was found (operations ceased with the initiation of the current bus service).

In February, 1973, the city also operated an electric dial-a-bus under a demonstration financed by the Federal Older American's Act with a grant from the Wisconsin Division on Aging. (This bus actually operated over a fixed route, but was radio-equipped and could be dispatched off route as a demand responsive vehicle.) It served the handicapped and those over 55 years of age with four runs per day over an eight mile route. Fares were free. The city provided 25% of the first year capital and operating costs and 40% of the subsequent operating costs. The battery powered vehicle, however, proved to be extremely unreliable and the annual ridership was only about 4300 passengers. The service ceased when outside funding for the program was not renewed.

## Implementation of the Present Service

Faced with rising deficits, along with a taxi operator who wanted to end its transit operations, the Mayor of Merrill approached the Wisconsin Department of Transportation (WISDOT) in search of aid.

WISDOT has a program of demonstration projects whereby the state provides up to 90% of the project costs for one year of operation. However, demonstrations can only be held

on existing transit systems, and Merrill's subsidized taxi operation was not seen as an "existing transit system" under a strict interpretation of the law. Fortunately, the taxi operator did have a common carrier certificate for a school bus operation and thus, Merrill did legally have an "existing transit system." With this fact in hand, the mayor and Senate minority leader (who represents Merrill) finally persuaded the State Secretary of Transportation to come through with a commitment for State aid for Merrill's transit system. Thus, Merrill was chosen to be the site of a state transit demonstration project of some sort.

In light of the secretary's commitment, Merrill appeared to be an ideal site for a demonstration of a demand responsive transit system. Moreover, WISDOT wanted to develop in-house staff expertise on planning and implementing innovative transit systems. Consequently, they prepared a preliminary proposal for a dial-a-ride demonstration project in Merrill with service scheduled to begin on July 1, 1974. However, because of increased workloads at WISDOT, the idea of doing an in-house staff study for Merrill was abandoned, along with the July 1, 1974, -starting date. A consultant was selected and in August, 1974, began work on developing a demonstration project. Merrill was understandably upset by the change in plans, since the project's start-up date would be delayed. However, local support for the demonstration itself apparently did not wane.

Given the constraint that Merrill did not want the city's share of the project cost to exceed the subsidies then being provided for the taxi and electric dial-a-bus operations (about \$20,000 per year), the consultant considered several alternatives, and recommended the point-deviation system finally implemented. (The other alternatives were a fixed route system, and two dial-a-ride systems.) There was little local opposition to the plans, and little local participation in the planning process, other than the perfunctory Transit Commission and City Council approvals required at various junctures in the planning process. Merrill officials did provide data on the taxi and dial-a-bus operations and on the pre-1971 fixed-route bus operation. However, realizing their lack of transit planning expertise, they were willing to let the "experts" do it. Moreover, local officials and citizens were not inclined to become embroiled in a controversy with the consultant and/or state officials over system planning and design issues, since only 10% of the project was being paid for through local funds. The city fathers ratified the consultant's recommendations and the city officially applied



for a state demonstration grant in late October, 1974. The grant was approved in January, 1975, (the delay was partially due to a change in the Secretary of WISDOT) and service was scheduled to begin in April, 1975.

On April 21, 1975, Merrill's point deviation bus service began its operations. The system operates two 23-passenger Flxette transit buses (Figures 2 & 3) at half-hour headways. A third bus is kept as a backup. The buses generally follow a direct path between checkpoints (indicated in Figures 4 & 5)). However, the buses are free to respond to requests for doorstep pick-ups or drop-offs and may follow any path between checkpoints. Patrons can request doorstep service either by informing the driver upon boarding the bus or by calling the dispatcher, who radios the driver, in order to request a pickup at a particular point. Buses operate on a scheduled basis with enough time between scheduled checkpoint departures to allow for intermediate deviations. Thus, the entire town is potentially covered by this system (59% of the population is within a 1/4 mile of the path traced out by the checkpoints). In June, 1975, by popular demand, a tenth checkpoint was added to the system.

Fares are 25¢ for trips between checkpoints with an additional 15¢ charge for the first deviation and another 10¢ for a second deviation on the same trip (door-to-door trip fare of 50¢). Where two or more persons travel together, only the first person pays the doorstep service charge. There is no reduced fare plan for the elderly. However, students going to or from school ride for 15¢ with an additional 15¢ charge for doorstep pick-up or drop-off. Weekly student passes are available at a reduced rate. The buses operate from 6:30 a.m. to 6:00 p.m., Monday through Thursday. Service is provided until 9:30 p.m. on Fridays for shoppers and from 8:00 a.m. until 5:00 p.m. on weekends.

The city officially runs the system through an administrator who reports to the Merrill Transit Commission. The administrator is in charge of the day-to-day operations of the system, although the consultant and the state did play an important role in the early months of the operation. Because of the system's status as a demonstration project, the state and consultant are involved in checking the operating expense records, suggesting minor operational changes and service modifications, and in monitoring the overall performance of the system.



Figure 2. Merrill-Go-Round Transit Vehicle

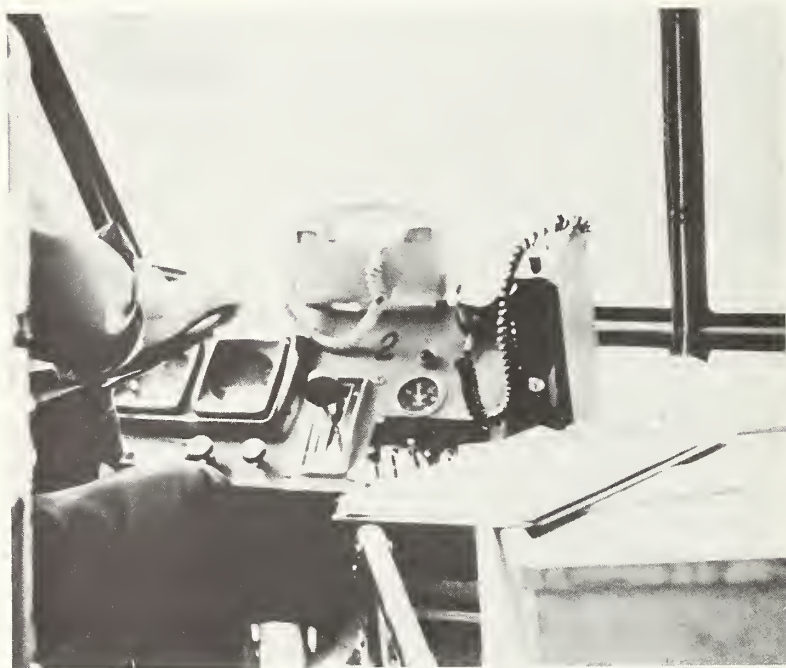


Figure 3. Vehicle Interior: Mobile Telephone and Communication Equipment

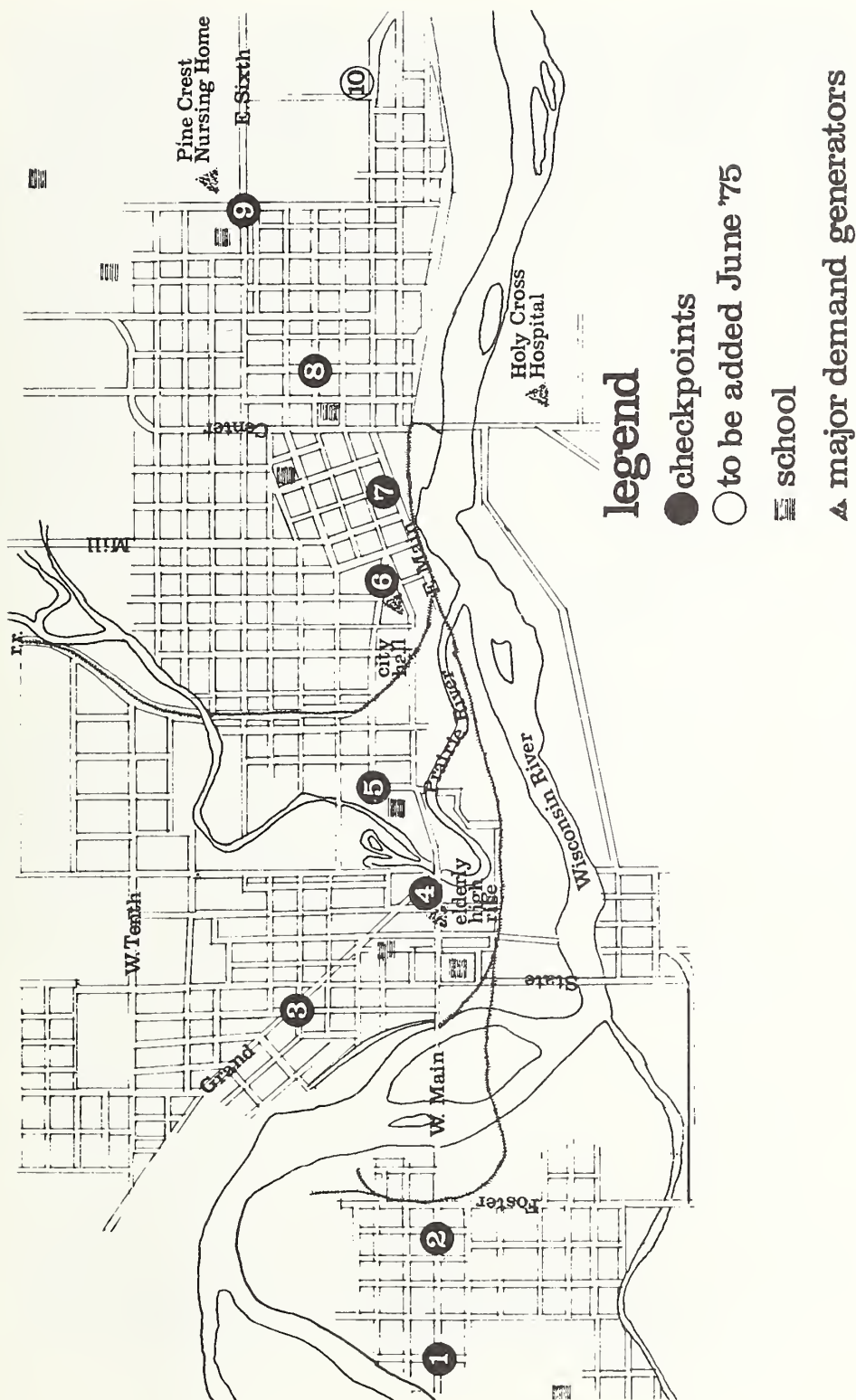


Figure 4 . Merrill-Go-Round , Checkpoints



Figure 5. Merrill-Go-Round Transit Vehicle at a Checkpoint



The administrator was chosen by the transit commission from a group of ten applicants. A life-long Merrill resident, he had no prior experience in transit. He and the rest of the Merrill staff underwent an intensive training program prior to the first day of operation. When one considers that this was a new system operated by inexperienced people, everything went relatively smoothly with the initiation of service and has continued to do so since.

A relatively extensive marketing effort was conducted for a system of this size prior to the start of service. Every household in Merrill received a brochure containing the route map, schedule, and a brief explanation of the service. A 'Name-The-Bus' contest was held (Merrill-Go-Round was the winning entry), and a number of presentations were made to retailers, elderly groups, etc., explaining the new service. Marketing efforts continue with radio advertisements, and additional mailings will be used to keep the public informed of proposed service changes and fare promotions.

The physical problems associated with project implementation were relatively minor. The most serious institutional problem was encountered with the State Public Service Commission (PSC), which regulates common carrier bus systems. An attempt was made to have the service exempted from PSC jurisdiction because of its demonstration nature and lack of a fixed route. This attempt failed and the system will be regulated by the PSC as if it were a fixed route service. Future experiments with fares or mode of operation may be difficult in that all such changes will require prior PSC approval.

## Results

Merrill-Go-Round transit characteristics and results are summarized at the end of this report. During the first week of operation, the system had a total ridership of 778 passengers. In the ninth week of operation a reduced fare promotion was held whereby the fares were reduced to 10¢/25¢/35¢ from the regular 25¢/40¢/50¢ levels. During the week of this promotion, ridership increased from about 1,000 passengers per week to about 1,600 passengers. After the promotion ended, however, the ridership declined to the base level. By the twenty-ninth week of operation the weekly ridership had grown to 1,631 (an average of 233 per day). The consultant estimates indicated an eventual patronage level of between 205 and 275 trips per day. Weekly revenues have averaged \$285 over the twenty-nine weeks. Total



project costs for the one-year demonstration are estimated at \$197,500. Operating costs make up \$84,600 of this total.

The pattern of demand through the day is not typical of most transit systems in large cities. There is a peaking of ridership between 7:00 a.m. and 8:00 a.m., reflecting the large number of school trips, but no peak in the evening. Instead, ridership remains on a fairly high plateau from 1:00 to 5:00 p.m. School children currently make up 40% of the ridership, and about 30% to 40% of the passengers are elderly.

Ridership by day of week reflects a gradual growth from Monday (173 trips, average) to Friday (212 trips average), with the Friday figures due in part to the evening service hours. Weekend ridership then drops to an average daily figure of between 75 and 100 trips per day.

The service has not been in operation long enough to have had a significant lasting impact on the community, but preliminary results indicate the most likely incidence of any impacts that would probably occur.

Merrill did not have an air pollution or traffic congestion problem, so any effect of transit on these would be negligible even if a substantial number of people were drawn away from the auto. A recent on-board survey indicated that 22% of the home-based trips on the system are work trips, and that 20% of the riders have been diverted from using the automobile. However, the major users to date have been the typically transit-dependent groups, such as children, the elderly and car-less housewives.

The greatest impact of the system has been on the elderly. Elderly tripmaking has been increased, primarily because of the reliable service and low fares of the system (schedule adherence is estimated at 90-95%). While the elderly were satisfied with the taxi service that operated immediately prior to initiation of the point deviation bus, most found the fares (\$.75) too expensive. Merrill-Go-Round has emancipated many of the elderly. Some of them ride the buses just for the fun of it and others have been able to get out on their own for the first time in years.

Community response to the system has been generally favorable, with its major support coming from the elderly. While the service is supposed to be for the entire community, and is not a demonstration of a system for the transit-dependent, most community members perceive the system as primarily serving the elderly and children. Most

residents feel that the system is a good idea and is needed. The fact that it is an innovative point deviation bus system seems to have gone relatively unnoticed by the community. In fact, many residents perceive the service as a fixed route system. During the initial months of operation, many users were unaware that they had the option of requesting a doorstep drop-off or pick-up.

On the basis of the favorable community attitude the service enjoys wide support. However, when one considers the strength of the commitment to transit service, one finds a different picture. The system could cease operation after the one-year demonstration ends. Merrill could legally apply for state aid to cover operating costs after the demonstration. Under Wisconsin's operating subsidy program, the state would pay two-thirds of the net operating cost of the system (total net operating costs are estimated as \$48,000 - \$66,000 per year for succeeding years). The City will not continue the service if the state subsidy does not come through (apparently \$20,000 per year represents the limit of Merrill's financial ability to support transit). Thus, the system enjoys a great deal of "passive" support while it remains within these budgetary bounds, but this support will apparently evaporate if Merrill is forced to bear the entire cost of the service in succeeding years.

The Merrill-Go-Round provides a reasonably good level of service and seems to adequately fulfill the transportation needs of Merrill's transit-dependent groups, especially the elderly. Merrill has been fortunate enough to have had the benefit of outside financial assistance and outside professional planning, two key ingredients not always available to small communities.

## SUMMARY OF MERRILL TRANSIT SYSTEM CHARACTERISTICS

### DEMOGRAPHICS

Population in service area: 9,500  
Population density: 1,700 persons per square mile  
Median household income: \$8,600  
Cars owned per household: n/a  
Percent carless households: n/a  
Percent transit dependent: n/a  
Average distance to service: n/a

### COVERAGE AND SERVICE

Number of routes: 1 (with deviation)  
Average route length (one-way): 5 miles  
Average route time (one-way): 30 minutes  
Time of service:  
    Monday - Friday                      6:30 am - 6:00 pm  
    Friday                                6:30 am - 9:30 pm  
    Saturday and Sunday                8:00 am - 5:00 pm  
Average headways: 30 minutes  
Number, types, and average capacity of vehicles:  
    3 vehicles - 23 seats per vehicle  
Number of vehicles in service: 2

### COST AND PRODUCTIVITY

Operating cost per month:  
Vehicle miles per day: 220  
Vehicle hours per day: 22  
Driver hours per day: n/a  
Operating cost per vehicle hour: \$9.49  
Operating cost per vehicle mile: \$0.78  
Operating cost per passenger trip: \$0.99  
Passengers per vehicle hour: 9.6  
Passengers per vehicle mile: n/a  
Driver wage rate: \$4.00

### REVENUE AND SUBSIDY

Fares: 25¢, checkpoint to checkpoint  
      40¢, doorstep pick up or drop off  
      50¢, doorstep pick up or drop off  
      15¢, student checkpoint to school

30¢, student doorstep to school  
 \$2.50, 10-trip student pass, children  
 under six free  
 Revenue per passenger: \$0.26  
 Subsidy per passenger: \$0.73  
 Operating Ratio: 3.8  
 Lease or buy vehicles: Buy  
 Funding:

	<u>Capital</u>	<u>Planning and Evaluation</u>
Federal	-	-
State	\$55,643	\$29,844
Local	6,182	3,316
Total	\$61,825	\$33,160

#### RIDERSHIP

Average passengers per weekday: 228  
 Ridership growth rate: Multiplied by 2 in  
 3/4 year and still increasing  
 Ridership composition:  
 45% youth  
 20% elderly  
 Trip purpose: school, shopping





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